



Hasselblad 500ELX

The Hasselblad 500ELX is a motorized single-lens reflex camera featuring lens, magazine, viewfinder, and focusing screen interchangeability.

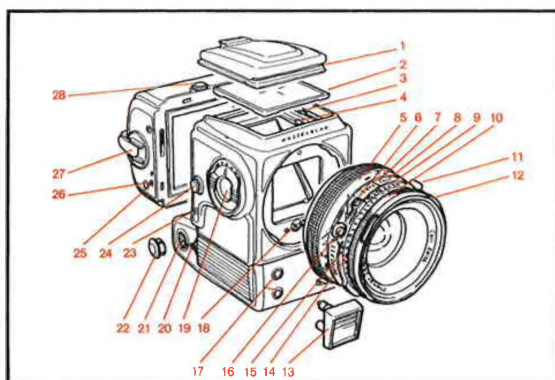
In addition to the speed and convenience of the motor drive, off the film flash light metering (so called OTF) places the 500ELX in a leading position with regard to state-of-the-art flash technology.

With the Hasselblad flash adapter — SCA 390, all types of flash units conforming to the European System SCA 300 can be connected to the 500ELX. When flash duration is sufficient to provide a correct exposure the flash units output is automatically cut. Hasselblad's new macro flash unit also conforms to the System SCA 300. OTF-metering is an especially important feature when using electronic flash for macro photography.

The ELX camera has a larger viewfinder mirror thanks to an entirely new mirror retraction system. Now the mirror always yields a completely uninhibited viewfinder image when using either extremely long telephoto lenses or a long bellows extension. On the following pages the operation and features of the camera are fully described.

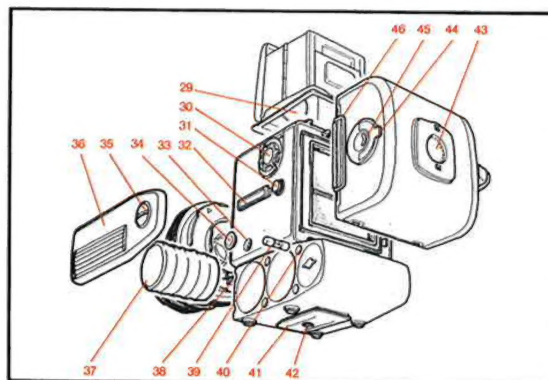
Please take a little time to read the contents of this instruction book. Follow the picture sequence for the best initial operation of your 500ELX. Full operational possibilities are described, and will enable you to make the very most of your new camera.

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|--|--|---|
| 1. Focusing hood | 10. Shutter speed selector ring | 20. Time exposure, locking and charging lever |
| 2. Focusing screen | 11. PC flash terminal | 21. Side socket for camera release and battery charging |
| 3. Screen retaining clip | 12. External and internal accessory mounts | 22. Protective cover for side socket |
| 4. Signal diode | 13. Standard release button | 23. Shutter status indicator |
| 5. Lens focusing ring | 14. Exposure value scale | 24. Strap lug |
| 6. Button for cross-coupling of shutter speed and aperture rings | 15. Exposure value index | 25. Magazine status window |
| 7. Central index | 16. Lens lock release button | 26. Frame counter |
| 8. Depth-of-field scale | 17. Release sockets | 27. Film winder crank |
| 9. Aperture ring with aperture scale | 18. Main drive axle | 28. Magazine release catch |

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| 29. Focusing hood magnifier | 36. Battery compartment cover | 43. Film speed and type indicator |
| 30. Film sensitivity selector | 37. Battery | 44. Roll holder key |
| 31. Strap lug | 38. Lens drive axle | 45. Film consumption indicator |
| 32. Accessory rail | 39. Fuse | 46. Magazine slide |
| 33. 6 pole OTF metering output | 40. Fuse holder | |
| 34. OTF metering output cover | 41. Quick coupling plate | |
| 35. Battery compartment cover locking button | 42. Tripod socket 3/8 | |

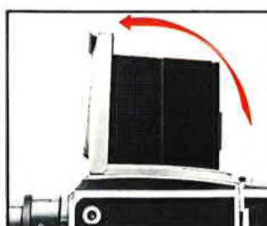
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Front protective cover
Turn the cover (bayonet fitting) in the direction of the arrow and remove.



Rear protective cover
Depress the catch and swing back the cover. Lift the cover off the magazine support hooks.



Opening the focusing hood
Lift the lid firmly at the rear edge, and swing it up to the vertical position.

The built-in magnifier
The magnifier flips up into the viewing position when the oval button is moved in the direction of the arrow.

To re-fold the magnifier simply press it down with a fingertip until it locks back into the lid. The magnifier may be changed for a correction lens. See page 17.

Closing the focusing hood
"Pinch" in the side plates at the hinge points, and fold down the lid.

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The battery and fuse

The battery will be found packed separately in the camera carton, as is the fuse. The camera will not operate before the battery and fuse are inserted into the camera's battery compartment. Access to the battery compartment is via the cover on the left side of the camera's motor-housing, or lower section. This cover can be unlocked by turning the slot in the locking button to a vertical position. Use the Hasselblad key disc or a suitable sized coin for this purpose.

Inserting the battery and fuse

Insert the battery into either of the two receptacles, PLUS END(+) FIRST.

Insert the fuse into the upper right hand fuse receptacle.

Replace the battery compartment cover. The two lugs at the front of the cover must engage the corresponding slots in the front of the motor



housing. The cover is then swung closed and the locking button turned until the slot is in a horizontal position.

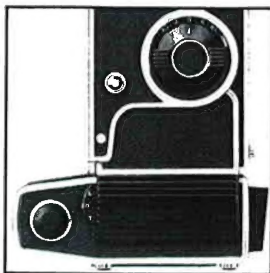
Check that the electrical circuit is complete by firing the camera via the main release button. This will also ensure that the camera has not been inadvertently pre-released during handling. The camera will automatically wind on and re-cock when pressure is removed from the main release button.

General

The camera is powered by nickel-cadmium batteries — Type DEAC 5/600DKZ. One fully charged battery provides about 1000 exposures. The camera accepts two batteries but will cycle just as quickly with only battery. Two batteries provide twice as many exposures.

The fuse is a 1.6 amp medium slow-blow with the dimensions 5x20 mm. ALWAYS carry a spare fuse.

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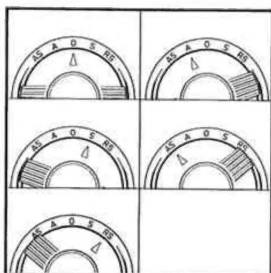


Mode selector dial

The selector dial has five settings governing the release modes of the camera.

O = NORMAL MODE. Following exposure and when the exposure button has been released the film is advanced, the between-the-lens shutter cocked, and the mirror returned to the viewing position.

S = PRE-RELEASE. In this mode certain functions are pre-released, only the actual operation of the between-the-lens shutter remaining when the main release is pressed. Since a number of camera operations are pre-released, the camera's reaction time between release and exposure is reduced to a minimum, as is camera induced vibration. There is no "click stop" for the S-mode. The selector returns to the O-mode after pre-release has been affected.



RS = The camera is pre-released when the mode selector is moved to RS, and continues to pre-release after each exposure until the mode selector is returned to the O or A position.

A = Automatic. The camera makes a continuous sequence of exposures as long as the triggering impulse is applied, and unexposed film remains in the camera. The sequential exposure rate in this mode is about 1 frame/s.

AS = The camera is pre-released upon selecting AS and exposures sequentially as long as the exposure button is kept depressed. At the end of the sequence the camera remains in a pre-released state.



Side socket for camera release and battery charging

On the camera's right side at the rear of the motor housing is a 5-pole DIN socket. It is used for shutter triggering by means of release cords (SK, LK, and DK), radio control, or an intervalometer, as well as for charging the camera's batteries. A protective plug covers the socket when it is not in use.

Recharging

Recharge unit 1 is standard equipment with each new camera and is used for recharging the camera's batteries.

Move the time exposure, lock/charge lever to the L or O position. Connect the recharge unit to the 5-pole DIN contact. Ensure that the unit is the correct model for your line voltage (110 or 220 VAC) and connect it to a wall outlet.

Recharging time is about 14 hours for a fully discharged battery and 28 hours if two batteries are charged simultaneously. Batteries should not be overcharged.

Change or recharge a battery as soon as the recycling time becomes noticeably prolonged. If a battery becomes so exhausted that the camera stops in the middle of a cycle, move the lever to the L position and connect the recharge unit.

Note. The L setting must be used if the camera has not recycled fully, otherwise either L or O may be used.

Time exposure, locking and charging lever

The lever located toward the rear of the motor-housing is used for time exposure (T), locking and battery recharging (L). The (O) position is for normal operation.

(T) For time exposures, the lens should be set at 8 and the mode selector at O, S, or RS. The camera shutter is mechanically opened when the "LOT" lever is shifted from O to T. The shutter then remains open without any drain on the battery. When the lever is returned to the O setting the shutter closes, the film is advanced, and the shutter is re-cocked automatically.

(L) In the L-mode the release is blocked to prevent inadvertent exposures. L-mode is also used for charging the battery when the camera has stopped part way into a cycle.

(O) Normal operating position.



Battery charging accessories

The batteries may be charged externally and an accessory holder 46337 is available for this purpose.

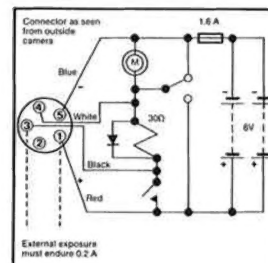


which is utilized for the standard release button. To gain access to the two sockets the standard button must be removed. To remove the button, grip it by the two small slots that are provided and pull it firmly off the camera.

FK type release cords may be used in the front sockets.

Release cords

A tripod should be used when operating the camera at slow shutter speeds. A release cord then being a suitable means by which to fire the camera. Release cords in lengths from 1 ft to 20 ft are connected to the front sockets. Release cords from 100 ft to 600 ft, and cords for connection of a recharge unit are connected to the side socket. When cords longer than 100 ft are used amplifier 46124 must be connected between the camera and the cord.



General

The 500ELX can also be released by closing the electrical circuit between pins 1 and 3 (see circuit diagram). The external resistance should not exceed 6 Ohms if triggering is to be reliable.

Circuit diagram

Voltage: 6V
Batteries: One or two DEAC 5/600DKZ without soldering tabs or battery terminals.
Fuse: 1.6 A medium slow-blow (5x20 mm)
Socket: Preh 8-6404
Exposure current (pins 1 and 3): 0.2 A.



Lenses

Since the early 1950's Hasselblad lenses have been manufactured by Carl Zeiss in West Germany. The Hasselblad 500ELX uses CF-lenses made by Carl Zeiss, but even so, with the exception of "F" type lenses, all lenses manufactured since 1957 may be used with the 500ELX.

Over the years, natural development and design changes have resulted in Hasselblad lenses being divided into three main groups: CF and C lenses which have built-in central shutters and F-lenses which have no shutter. F-lenses can only be used with the Hasselblad 2000 series. The Zeiss Planar CF 1.28/80mm is the standard Hasselblad lens. CF lenses feature built-in leaf shutters with an automatic diaphragm, exposure value scale and X synchronization. Lenses are attached to the camera via a bayonet mount.

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Attaching a Hasselblad lens

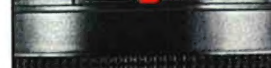
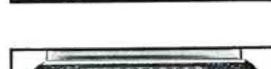
Make sure that the camera is fully cocked and not pre-released. The picture shows the correct relation between the camera's drive axle and the red index dot.

Ensure that the lens is cocked.

The slot on the drive axle must be aligned with the adjacent red dot, as shown in the picture. If this is not the case then insert a coin in the drive axle slot and turn it in the direction of the arrow until it locks.

Align the red index on the lens bayonet with the corresponding index on the body bayonet.

Insert the lens and rotate it clockwise. A faint click can be heard as the lens lock drops into place. The lens will now turn no further and is fully locked on.



Diaphragm

CF lenses have an automatic diaphragm that stops down to the working aperture immediately prior to exposure.

Shutter speeds

The shutter speed selector ring is the ring located closest to the front of the lens. The desired shutter speed is set against the main lens index.

The white scale shows the shutter speeds, and the orange scale the exposure values.

The green F setting is only used when the lens is attached to a Hasselblad camera in the 2000 series. The F setting disconnects the leaf shutter which then allows a 2000 series camera to work in the focal plane shutter (F) mode, if desired.

The F setting can only be made after depressing the green detent button.



Exposure values

The aperture and shutter speed combination set opposite the central lens index determines the exposure. Every combination of shutter speed/aperture has an equivalent exposure value (EV).

Cross-coupled shutter speed/aperture
When the cross-coupling button is depressed the lens aperture ring and the shutter speed ring are locked together and rotate simultaneously. In this manner, speed/aperture combinations may be altered, without change in exposure value (EV).

Should you for example, wish to change from 1/8 to 1/11, the shutter speed ring will automatically be moved to a correspondingly slower shutter speed.

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Focusing and depth of field

The lens is focused with the focusing ring (the rubberized ring closest to the camera body). Rotate the ring until the viewfinder image is sharp.

The distance between the subject and the film plane is read off the focusing ring's distance scale opposite the central index. The distance in meters is shown in white numerals, and the distance in feet is in orange numerals.

Objects closer or further away than the set distance can be sharp within certain limits. The borders for this field of sharp focus, i.e. depth of field, vary with the *f*/stop.

A small *f*/stop yields wide depth of field. A large *f*/stop yields narrow depth of field.

The depth of field available at any given *f*/stop can be read off the depth-of-field scale located on both sides of the central index.



Viewing depth of field

Depth of field may be viewed by stopping down the lens to the required aperture and viewing the resulting image on the ground glass.

To stop down the diaphragm simply slide the manual preview button downwards until it locks into the preview position.

To release the button, and reopen the diaphragm, press in the button's lower section.

Lens removal

Depress the lens release button and rotate the lens counter-clockwise about one fifth of a turn to remove.

Note. Lens removal is only possible if the camera is cocked (fully wound), and not in the pre-release, S, RS, or AS modes.

Film magazines

Attaching the magazine

Ensure that the magazine slide is fully inserted, and that the indicator is white. If the status indicator does not show a white signal then refer to the instructions on page 16.

Locate the magazine on the lower support hooks — see that it is fully sealed on the supports.

Slide the magazine catch to the right and hold it there whilst swinging the magazine into contact with the camera's rear plate. Release the magazine catch, ensuring that it returns to the left-locked position.

Remove the magazine slide and the camera is ready to shoot.



Removing the magazine

As the Hasselblad 500ELX is automatically wound on after each exposure the camera and magazine status indicators will always show white signals, unless the battery is so depleted that it cannot complete the wind. Check that the magazine status indicator is white before removing the magazine from the camera.

Insert the magazine slide into the magazine.

Slide the magazine catch to the right.

Swing back the magazine and lift it off the lower supports.

The magazine cannot be removed without inserting the magazine slide. The slide protects the film from fogging. Note also that the camera cannot be fired when a magazine, with slide inserted, is attached to the camera.



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Loading the magazine

The magazine may be loaded on, or off the camera. If the magazine is to be loaded off the camera then the magazine slide must be inserted, and have its flat side towards the rear of the magazine. This facilitates removal of the roll holder for loading.

- 1) Fold out the roll holder key.
- 2) Turn the key counter-clockwise and withdraw the roll holder.
- 3) Place an empty spool under the spool clamp holder bar — closest to the splined knob. Insert a roll of film under the other end of the bar, ensuring that it is turned the same way as in the picture. Be careful to remove all the paper tape that surrounds a new roll of film.
- 4) Turn the roll holder key clockwise so that the film clamp opens. Pull 3 to 4 in. of paper backing off the film roll and slide the edge under the clamp.
- 5) Insert the tongue of the backing paper into the slot in the take-up spool.
- 6) Turn the splined knob clockwise until the arrow on the paper backing is opposite the triangular index on the spool clamp bar.
- 7) Turn the roll holder key counter-clockwise so that the film is caught under the clamp, and insert the roll holder into the magazine — jiggling it a little if it does not click into place. Lock the roll holder into the magazine by turning the key clockwise.
- 8) Fold out the film crank and rotate it clockwise — about ten turns until it stops. Refold the crank. Number 1 will now be displayed in the frame counter window and the magazine is loaded — ready for use.

Note. The magazine can only be removed from the camera when a magazine slide is inserted.

The camera cannot be fired when a magazine, with slide inserted, is attached to the camera.

Removing film from the magazine

When the last frame has been exposed, and wound on, the magazine is blocked for further release.

Wind off the film by folding out the film winding crank, and rotating it clockwise until the film is felt to clear the spool.

The roll holder may now be withdrawn from the magazine and the exposed film removed.

General

The magazine's film winder crank is only blocked at frame 1. After frame 1, a partially exposed film may be wound off at any time.

The frame counter resets automatically when the rollholder is removed from the magazine.



Load status and film type indicators

In the center of the roll holder key is a crescent shaped indicator that displays white when the film is loaded into the magazine and progressively changes to red as the film is wound on. A completely red signal indicates that either the final frame is exposed, or that the magazine is empty.

The film indicator at the rear of the magazine can be set to the sensitivity of the film in use — in ASA or DIN.

The indicator hinges out to accept the film carton's lid, reminding the user of film type, as well as sensitivity.



The magazine and camera indicator windows

The status indicator signals on the magazine's and camera's right side show if a particular unit is ready to fire (white), or is fired (red). The 500ELX will always show white as it is automatically recycled after each exposure. When attaching a magazine to a 500ELX the magazine signal must be white.

A magazine with an exposed frame in the aperture i.e. red signal may be safely wound on as follows:

Bring the time exposure, locking and charging lever from the O, or normal position, to the T — time exposure position.

Attach the magazine to the camera, leaving the magazine slide in place.

Return the lever to the O position. The camera will now wind on the film and the status indicator will change to a white signal.

Double exposure

Proceed as follows when multiple exposures are desired on the same frame:

Press the shutter release to make the exposure, and keep it depressed whilst moving the exposure, locking, and charging lever to the L setting.

Insert the magazine slide and remove the magazine from the camera. Return the lever to the O setting. The camera will now wind on, after which the magazine may be replaced.

Repeat the cycle for additional exposures on the same frame.



Change of focusing hood or viewfinder

The film magazine must be detached before the focusing hood or other viewfinder can be removed.

Remove the hood by sliding it rearwards in its guide slots. Slide the replacement finder into the slots and push it forward. Attach a magazine to the camera.

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Changing the magnifier

The focusing hood has an easily interchangeable magnifier if you should need to compensate for eyesight variations.

Magnifiers with Correction Factors from +3 to -4 are available, and easily interchangeable by following these instructions:

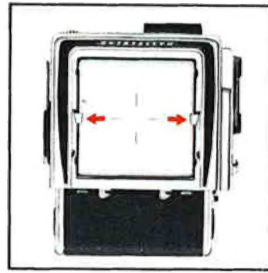
Remove the focusing hood from the camera and open it by lifting the lid firmly at the rear edge.

Bring the magnifier to the viewing position by moving the oval button in the direction of the arrow.

Push the magnifier half way back to its folded position.

Through the underside of the hood, grip the lower edge of the magnifier between thumb and forefinger — and pull firmly.

Insertion of the replacement magnifier is the reverse of the above procedure.



Changing the focusing screen

The focusing screen is quickly interchangeable without the requirement of special tools.

Detach the magazine and viewfinder.

Slide the screen latches to the side.



Cup your hand over the screen and invert the camera — the screen will drop into your hand.

Insert the replacement screen, ensuring that the smooth flat side of the frame is uppermost, and that all four corners are seated on the support pins.

It is not necessary to return the screen latches. This is done automatically when the viewfinder is replaced.



Flash synchronization in general

The Hasselblad 500ELX uses lenses from the Hasselblad CF series. These lenses have built-in leaf shutters with speeds from 1 to 1/500s. Flash synchronization occurs at full shutter opening via the PC flash terminal.

Electronic flash units can be used at all shutter speeds, 1–1/500.

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Automatic flash light metering

The camera's built-in flash sensor and electronics measure the light that is reflected from the central portion of the film surface, a circle with a diameter of 40 mm. The metering system is attached to a selector for setting film speed, and with an adapter, the SCA 390, provide a control signal which is transmitted to a flash unit conforming to the System SCA 300. The signal regulates the flash unit, cutting off the flash when the exposure is correct. Under the left edge of the focusing screen, a signal diode indicates when the flash is ready to be fired and then confirms if the amount of light emitted was sufficient to provide a correct exposure. The flash unit powers both the camera's electronics and the adapter.

Note:

For the present, the Hasselblad 500ELX flash light metering system works ONLY in conjunction with the Hasselblad flash adapter SCA 390 and those flash units that conform to the system SCA 300.

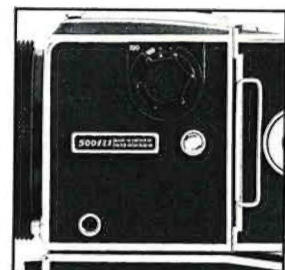


Attachment via the Hasselblad flash adapter SCA 390

For hand-held flash units the adapter is attached as seen in the picture:

- the 6-pole contact from the spiral cord is connected to the camera's side socket.
- the sync cord is connected from the adapter to the flash contact of the lens.
- the connecting cord is attached to the hand-held unit. This cable is designated SCA 300A and it generally does not come with the flash. When using smaller size flash units that conform to the System SCA 300, the flash is attached directly to the adapter.

A special cord — the SCA 307A — can be used when separating the flash unit from the adapter.



Setting the film speed

The film speed is set via the ISO selector. This is divided into ISO/ASA settings from 15 – 1000. The equivalent in DIN ratings can be found using the table below. Certain films require compensation for differences in reflection. In these instances, the level of compensation is accounted for as a deviation in film speed.

Note: The flash unit must always be set to the "TTL" position.

ISO/ASA	15	25	50	100	200	400	800	1000											
DIN	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

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The signal diode in the viewfinder

The signal diode located under the left edge of the focusing screen indicates two different signals, both shown in a red glowing light. The diode is only in operation when the camera is used with the flash adapter SCA 390 and a flash unit that conforms to the System SCA 300.

Ready signal

A steady red light indicates that the flash unit is charged and ready to be fired.

Result signal

A blinking red light that occurs for just over a second after exposure indicates that the flash has emitted the right amount of light for a correct exposure. After the blinking signal, the diode returns to the ready signal when the flash unit is once again fully recharged.

No ready signal

This indicates that the flash emitted was not sufficient for correct exposure. The aperture must then be opened further, or the distance to the subject must be reduced. Changing to a faster film is also another alternative.



Please refer to your flash unit's operating instructions for more information about other functions when using automatic flash light metering that conforms to System SCA flash photography with flash sensors, or with non-automatic flash units.



Accessory mounts

On the underside of the camera is a 3/8" tripod socket. The socket is located in the center of a quick coupling plate that accepts pistol grips, and flash gun brackets. A special attachment is available for tripods that will receive, and lock on to, the camera's quick coupling plate.



In front of the strap lug on the left side of the camera is an accessory rail for the Hasselblad sports finder, spirit level, and adjustable flash shoe.

The lenses accept filters and lens shades via internal and external bayonet mounts.

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Accessories

51681 Flash adapter SCA 390

For connecting flash attachments that are compatible with the European SCA 300 system to the 500ELX camera.

Can be attached to the flash-shoe on prism finders, the flashgun bracket, or the camera's accessory rail.

46302/46310 Power supply unit

Makes the 500ELX independent of batteries when it is set up for stationary use. The unit consists of an adapter and a motor housing panel in black or chrome which replaces the standard battery cover on the camera.

The unit is available for 110 volts AC or 220 volts AC.

51678 Macro flash unit

This flash unit contains two light sources that can be fired simultaneously, or one at a time. It is even possible to change the light with the aid of wide angle and other screens. By attaching the unit to the Hasselblad 500ELX via the flash adapter SCA 390, it is possible to achieve automatic control of flash duration (TTL). The two light sources can be positioned advantageously with the help of the Hasselblad macro flash bracket.

51657 Macro flash bracket

The bracket has three mounting shoes. The two arms are articulated at three points and rotatable 360°. The bracket is attached to the lens accessory mount with separate lens mounting rings which also have a slot for a gelatin filter holder.